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Integrating Global Trends Information Into Army Strategic Planning Processes

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Effective strategic planning in the Army Long-Range Planning System (ALRPS) process must successfully relate Army long-range plans for all functional and special areas to the worldwide military, political, social, economic, demographic, environmental, and technological climate. Current processes exclude key experts from direct participation in strategic planning. Furthermore, the ability of planners to analyze relevant trends is limited by the overwhelming, constantly changing mass of data available.

Alternative methodologies for enhancing the process for incorporating global trends information into Army strategic planning are presented. Alternative 1 addresses using trends information in strategic facility planning at the installation level. It limits the number of process participants, computer system complexity, and the general level of effort required for implementation. Alternative 2 is a more comprehensive approach that brings global trends experts face-to-face with all key Army ALRPS participants—not just facilities planners—into a robust working group. It seeks to capitalize on the expertise of non-Government strategic futurists and trend experts by involving them in the process and letting them share in the findings. Furthermore, Alternative 2 promotes communication across Army staff agencies to enhance the Army strategic planning process.

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FOREWORD

This research was conducted for the Office of the Assistant Chief of Engineers (OACE) under project 4A162784AT41, "Installation Planning and Utilization"; Task 215, "Strategic and Installation Planning"; Work Unit AH2, "Strategic and Long-Range Planning Area." The OACE technical monitor was Mr. Gregory Brewer, DAEN-ZCI-P.

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CONTENTS

INTEGRATING GLOBAL TRENDS INFORMATION INTO ARMY STRATEGIC PLANNING PROCESSES

1 INTRODUCTION

Background

Effective strategic planning at Army headquarters level must consider significant international military, political, social, economic, demographic, environmental, and technological trends, and their implications for continuing fulfillment of the Army's mission. Senior Army leaders, as well as representatives of Army functional areas, must be able to easily identify and respond to external factors that affect the Army's goals. One tool to help Army installation planners analyze the implications of global trends for Army facilities is TRENDS,[1] developed by the U.S. Army Construction Engineering Research Laboratories (USACERL). TRENDS, developed using the KnowledgePro[2] hypertext environment, takes advantage of the data management capabilities of the microcomputer to provide installation planners a broad and easily accessible knowledge base on global trends. There remains a need, however, to more effectively integrate the TRENDS system into the Army Long-Range Planning System (ALRPS)[3] process to help the Army develop the programs and strategies necessary to fulfill its mission.

Objectives

The objectives of this project were to:

1. Develop a headquarters-level methodology for using trends information to support the ALRPS process and development of the Army Long-Range Planning Guidance (ALRPG).[4]

2. Develop a headquarters-level methodology for using trends information to support development of the Army Long-Range Facilities Plan (ALRFP).[5]

3. Explore the development of methodologies for better determining the facilities-related implications of global trends at the installation planning level.

4. Explore concepts for effective update and expansion of the TRENDS database, sources of information and expertise on global trends, their interrelationships, and their implications for Army installations.

5. Provide recommendations for better integration of trends information in Army Strategic Planning.

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[1] I.R. Adiguzel, T.J. Kim, and D.L. Fields, *An Automated Approach to Global Trends Analysis for Installation Planning*, Technical Report P-91/44/ADA240782 (U.S. Army Construction Engineering Research Laboratory [USACERL], August 1991).

[2] *KnowledgePro*™, IBM-PC version by Beverly and William Thompson (Knowledge Garden, Inc., Nassau, NY, 12123, 1988).

[3] Army Regulation (AR) 11-32, *Army Long-Range Planning System* (Department of the Army [DA], 10 January 1989).

[4] *Army Long-Range Planning Guidance: FY 2001-2021* (Headquarters, U.S. Army Office of the Deputy Chief of Staff for Operations and Plans [HQDCSOPS], June 1991).

[5] *Army Long-Range Facilities Plan* (Office of the Assistant Chief of Engineers [OACE], November 1989).

Approach

Research focused on two principal areas: (1) the development of a methodology to integrate global trends analysis into Army headquarters planning activities, and (2) development of expanded resources for the identification and collection of global trends information. A literature search was conducted to locate sources of information on strategic planning, both in the private and Government sectors. Selected documents were reviewed, current strategic planning policy and methodologies were evaluated, and critical strategic planning issues were identified. The contents of the TRENDS database were reviewed. A complete bibliography of database contents and a listing of global trends sources (individual experts, organizations, publications, etc.) was compiled. A literature search and telephone survey were conducted to identify new authoritative information sources on global trends. The TRENDS database development process, database structure and contents, and recommendations for the revision of the TRENDS system were reevaluated.[6] Existing private-sector strategic planning methodologies and the TRENDS database development methodology were documented. Recommendations for effective integration of global trends information and analysis in the ALRPS and the ALRFP processes were developed and documented.

Scope

This study addresses enhancement of both the facilities planning process at the installation level (in Alternative 1) and the overall Army strategic planning process (in Alternative 2). Implementation of Alternative 2 would encompass the enhancements sought through Alternative 1.

Mode of Technology Transfer

A briefing on recommended methodologies for the integration of global trends information in Army strategic planning processes, which was based on this research, has been presented to U.S. Army Office of the Assistant Chief of Engineers, Installations Planning Branch. Enhancements of the TRENDS prototype or the ALRPS resulting from this research may have an impact on AR 11-35, *Army Long-Range Planning System.*

[6] I. R. Adiguzel, T. J. Kim, and D. L. Fields, p 18.

2 COMPONENTS OF THE ARMY LONG-RANGE PLANNING PROCESS

The U.S. Army Long-Range Planning System (ALRPS)

ALRPS is a long-range planning process that provides for total Army involvement in defining the linkage between long-range goals, mid-term objectives, and the programming process. The ALRPS process is responsible for the identification of significant international military, political, social, economic, demographic, environmental, and technological trends, and their potential implications for the Army. It defines the methods by which senior Army leaders participate in plan generation and coordinate policy development. Furthermore, it establishes the products or systems for disseminating guidance and implementing the plan.

During the first phase of the ALRPS process, senior Army leaders develop their vision of the future and document it in the ALRPG. ALRPG establishes goals for each functional area within Headquarters, Department of the Army (HQDA) and identifies the capabilities required by the Army to operate successfully 10 to 20 years into the future. It is developed with strategic guidance from the President of the United States, the Secretary of Defense and the Chairman of the Joint Chiefs of Staff through an iterative process involving the Secretary of the Army, the Army Chief of Staff, Army secretariat and staff principals, commanders of major Army commands (MACOMs), and Army Component Command commanders.

In the second phase of the ALRPS process, long-range plans are developed for each Army functional and special area. Based on the ALRPG, these plans forecast requirements 30 years into the future. As a minimum these long-range plans include: (1) definition of functional mission requirements for the long-range period, (2) the goals and objectives for accomplishing mission requirements, (3) strategies or alternatives for achieving the specified goals and objectives, and (4) an explanation of how the plan correlates to Army warfighting concepts, doctrine, and other functional or special areas.

The U.S. Army Long-Range Facilities Plan (ALRFP)

The proponent for the facilities functional area within the Army is the U.S. Army Office of the Assistant Chief of Engineers (OACE) Installations Planning Branch. This branch is responsible for the translation of ALRPG requirements into long-range plans for providing quality real property support to the total Army. The organization publishes the ALRFP, which establishes the foundation for the Army's installation and facilities plans. The ALRFP addresses facilities needs for a 30-year period in coordination with the ALRPG. Furthermore, it establishes real property goals to be used by long-range planners and the engineer community to guide the Army's real property planning, programming, budgeting, execution, and management activities.

Trend Identification and Analysis in the ALRPS Process

To be effective, the ALRPS process must formulate the long-range plans for all Army functional and special areas in the context of the military, political, social, economic, demographic, environmental, and technological climate of the world as a whole. The Strategic Studies Institute (SSI) of the U.S. Army War College provides information on all these areas for use in the ALRPS process. SSI is responsible for reviewing strategic futures reports and other resources to identify significant long-term international trends and their potential implications for the Army. The successful identification and analysis of

significant trends by SSI is critical to the effective development of the ALRPG and effective execution of the ALRPS process.

The Implications of Global Trends for the Facilities Planning Process

The Army facilities delivery process consists of three major steps: (1) identification of functional requirements, (2) identification of the facilities required to meet the functional requirements identified, and (3) development of optimal solutions. Army facility planners use the Real Property Planning and Analysis System (RPLANS) system to identify facilities requirements, based on stationing requirements as defined by the Army Stationing and Installation Plan (ASIP). Capital investment strategies (CIS) are developed to provide optimal facility solutions to these expected demands. However, the current ASIP, the very foundation of facilities planning strategies, is known to be an inaccurate predictor of functional requirements over the long-range planning horizon. For example, the ASIP does not take into account future unknown realignments that may occur in the Army's transition to highly mobile, rapidly deployable "power projection platforms" in the 21st century, as envisioned by Army leadership. These realignment transitions have not even been fully determined for the near-term future. Furthermore, the ASIP does not take into account demographic, technological, or environmental changes that historical trends suggest may occur. Neither does it take into account long-term Army military needs, which can no longer be based on the fundamental geopolitical assumptions formulated at the end of World War II. However, based on current processes, Army facility planners use only one alternative future expected facility demand curve, broken out by facility type. A single "best" CIS is prepared in a least-cost mode (e.g., facility life-cycle costs, budget constraints, etc.) based on today's engineering wisdom.

Inaccurate planning decisions affecting the Army's inventory of built facilities could constrain the Army from being able to react rapidly and cost-effectively to fulfill varied future missions. If (1) trends can be used to develop plausible predictions of alternative outcomes, (2) the facilities implications for these outcomes can be identified by facility type (e.g., roads, maintenance, supply and storage, medical, administrative, housing, recreation), and (3) the impacts on facilities can be quantified, then the planner would have sufficient information to prioritize real property investments. These planning support techniques, if implemented, will improve the ability of the Army's future facilities inventory to fulfill its future missions.

The TRENDS System

Trends affecting Army installation real property planning, programming, budgeting, execution, and management are incorporated into ALRPG. Guidance and trend documentation are broad in scope, however, relating primarily to the Army as a whole. As such, this documentation is not specific enough to adequately develop the ALRFP or to support installation-level real property master plans. To help real property planners at headquarters identify and analyze trends that affect Army installation real property, USACERL developed TRENDS. TRENDS is a prototype intelligent data management system originally designed to help Army planners at the headquarters level keep abreast of global trends that affect long-range facilities plans. TRENDS models a dynamic process of locating information in, and incorporating new information into, a continuously updated database program. It is a microcomputer-based system that uses a hypertext environment to cross-reference global trends by title, category, or keywords. The system summarizes expert information on the implications of selected trends, lists sources of additional information, suggests names of associated trends, and explains the relationships between global trends. TRENDS includes a telecommunications package allowing subject-matter experts and database users to network with one another on facilities planning issues. Furthermore, the system allows experts and users to make recommendations to system managers on database expansion and enhancement.

TRENDS currently requires a DOS*-compatible 80286-based microcomputer with extended random access memory (RAM), a graphics adapter card, and at least 10 megabytes of unused hard disk space. Although the prototype TRENDS system was originally designed for Army headquarters installation planners, it is fully capable of expansion to include information relevant to Army planners within functional or special areas at all levels. TRENDS currently includes the following six functions:

1. Global Trends Database A database of political, economic, demographic, environmental, and technological trends with implications for Army real property management at the installation level. Each database entry includes key issues related to the trend, facts, stated implications, supplemental data, references, cross references, and additional sources. (Appendix A contains a sample extract from the TRENDS database.)

2. Related Trends A listing of related trends that warrant attention by planners.

3. Trends Relationships Analysis An analysis of the relationships among global trends that promotes brainstorming.

4. Bibliography Search A literature search of source articles by keywords.

5. Communications Facility The capability to use an outside text editor or word processor to write messages to the system manager to take notes.

6. TRENDS Maintenance Direct user access to the system maintenance manager through a telecommunications system. TRENDS is programmed for connection with SmartCom III,* connecting users worldwide with the Programming, Administration, and Execution (PAX) system. Planners can send written comments to PAX system managers or other planners. Users may also retrieve data from external databases into TRENDS.

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*DOS = disk operating system

*SmartCom III is a product of Hayes Microcomputer Products, Inc., PO Box 105203, Atlanta, GA 30348

3 THE ROLE OF TREND ANALYSIS IN STRATEGIC PLANNING

Trend Analysis in the Strategic Planning Process

Privately owned corporations rely on strategic plans, whether the product of formal planning mechanisms or less formal processes. Formal planning mechanisms coordinate and direct corporate departments toward a set of common goals. A strategic plan is a structured, measurable plan showing the directions necessary to achieve agreed-upon objectives. The primary purpose of strategic planning is to improve the quality of current decisions in terms of future directions.[7] A corporate strategic plan identifies opportunities to create and enter new markets, develop new and improved products and services, decide upon when and how to diversify, and to address emerging environmental or competitive challenges. Effective strategic planning can often provide a company the competitive edge necessary for survival in a tough market.

Thompson and Strickland refer to four major levels of strategic plan in the private sector: (1) corporate, (2) line of business, (3) functional area support, and (4) operating-level.

Corporate strategies refer to comprehensive strategic plans for an organization as a whole. They cover all product lines, departments, business interests, and resource allocation among these activities. They apply to multiproduct, multiindustry, or multitechnology organizations. Corporate strategies may be considered analogous to a total Army strategic plan, the basis of which is ALRPG.

Line of business strategies focus on how a firm plans to conduct its activities within a single market or market segment. Obviously, for a single-product, single-business enterprise, corporate and line of business strategies are the same thing.

Functional area support strategies pertain to the key functional areas of a business. They deal with the strategic plans for managing key functional areas such as production, marketing, finance, or personnel. The line of business and functional area support strategies are most closely analogous to strategic plans generated by the various functional elements or special areas of the Army (e.g., the Installations Planning Branch, as facilities proponent, and the ALRFP). Means to carry out ALRFP goals are defined in the Capital Investment Strategy component of the Army Installation Master Plan.

Operating-level strategies deal with the "nuts and bolts" of how various activities of the functional area strategies will be carried out.[8] An Army installation's Annual Work Plan could be compared to a corporation's operating-level strategy.

Ideally, corporate strategic plans are developed in sufficient detail to provide the organization's managers the information they need to manage their areas in support of the total corporate strategic plan. The process steps include (1) definition (or reevaluation) of the organization's mission or vision, (2) identification and evaluation of internal and external strengths and weaknesses, (3) development of appropriate objectives to overcome weaknesses, (4) identification, evaluation, and selection of appropriate strategic alternatives to meet the stated objectives, and (5) development of a strategic plan to achieve the desired objectives following the selected alternatives. Figure 1 presents a simple diagram of the corporate strategic planning process. Over time, events and changes in the external environment will affect the appropriateness of the selected strategy, so continuous monitoring and adjustment are required to follow the plan.

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[7] P. F. Drucker, *Managing in Turbulent Times*, (Harper & Row, New York, 1980).

[8] Thompson and Strickland, *Strategy Formulation and Implementation* (Business Publications Inc., Dallas, 1980).

The five elements of the corporate strategic planning process are discussed below.

Definition or Reevaluation of Mission

The logical starting point of a strategic planning process is with an existing strategic plan or, if none exists, with definition of the organization's mission. This is basically a statement defining what the organization seeks to accomplish, both in the present and in the future. The answers to five questions can define the organization's mission:

1. What is the company's main business?
2. Who are the most important customers?
3. What products or services do they want?
4. What will the business be?
5. What should the business be?

Drucker points out that neglecting the question, "What is our business?" is the most important cause of organizational frustration and failure. According to Drucker, the answer to the question, "What will the business be?" depends on four things: (1) market potential and market trends, (2) the changes in the market arising from global trends (economic developments, changes in fashion or taste, emerging competition, demographic trends, etc.), (3) innovations that will change the customer's wants, and (4) the customer's unsatisfied wants.[2] The answer to the question "what should the business be?" depends on analysis of the current situation and projection of the impacts of future trends. Does the analysis show a need to change the nature of the business? Setting appropriate objectives and continually reexamining them enables a business to pursue its goals methodically rather than aimlessly reacting to the environment.

Evaluation of the Organization's Strengths and Weaknesses and Development of Strategic Objectives

Objectives are needed in every area where performance will affect the prosperity or survival of the business. A realistic examination of the environment in which the company operates should be made to

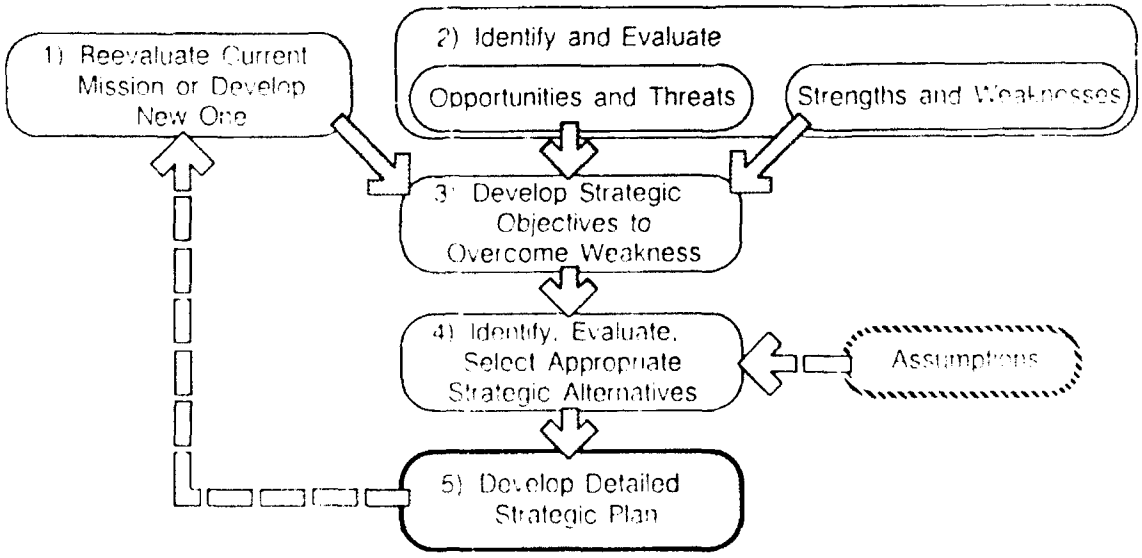

Figure 1. Corporate Strategic Planning Process.

[2] P.F. Drucker, *The Practice of Management* (Harper & Row, New York, 1986).

identify the major opportunities and threats. The findings of this examination form the basis for development of clear short-range and long-range objectives. The planning group evaluates the market opportunities, competition, threats, and other relevant external factors.

Porter refers to five important external factors to be considered in corporate strategic planning: (1) demographics, (2) trends in customer needs, (3) change in the relative position of substitute products, (4) change in the position of complementary products, and (5) penetration of the customer group.[10]

In consumer goods, demographic changes are one key determinant of market size for a product. One important demographic factor is income elasticity, which refers to changes in a buyer's demand for a product as his or her income changes.

Trends in customer needs refers to the changes in the lifestyle, taste, philosophy, or social condition of the buyer population (which any society tends to experience over time). For purposes of comparison, the TRENDS system classifies external environmental factors as political, economic, demographic, environmental, or technological.

Drucker has suggested that the external environment be divided into economic, technological, political, and social domains. He also suggests two methods of external factor analysis: bedrock analysis and trend analysis.[11]

Bedrock analysis focuses on past events that have not yet been played out in the economic domain. Instead of attempting to predict economic conditions, this method tries to find the "bedrock" conditions underlying the economic environment.

Trend analysis tries to identify the specific trends that most affect a company's business. It then attempts to project them in such a form that decisions can be made for the long term without too much attention to the short-term business cycle.

Internal situation analysis is also an important strategic planning factor. Internal analysis is based on the organization's strengths and weaknesses. Strengths are the basis of competitive advantage. Strengths derive primarily from gradually accumulated experience and sustained business success. Financial resources, marketing skill, technical know-how, cost-effectiveness, morale, corporate image, and market standing are some of the factors to evaluate during analysis of a company's internal strengths and weaknesses. Strategic issues are evaluated for "goodness of fit" between the organization's internal resources and the external environment it must operate in.

By monitoring external and internal trends, organizations can effectively prepare themselves to capitalize on opportunities or defend against threats. Clear objectives can be established to cope with adverse factors and form the basis for a strategic plan.

Evaluation of Strategic Alternatives

After the organization establishes its objectives, the next step of the strategic planning process is to identify and evaluate strategic alternatives to accomplish those objectives. Examples of corporate strategic alternatives include concentration on a single business, diversification, joint venture, merger, or acquisition. These alternatives are not mutually exclusive, but can be used in combination to adjust to changing internal and external circumstances. A good strategy is one that produces the desired results. The broad categories of corporate strategy include strategies for "underdog" businesses, strategies for dominant firms, strategies for growth markets, strategies for declining businesses, and turnaround strategies. Business-level

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[10] M.E. Porter, *Competitive Strategy* (The Free Press), A Division of MacMillan Publishing Co., Inc., New York, 1980.
[11] P.F. Drucker, *The Practice of Management*.

alternatives include specialization or concentration, innovation, image-building, improving market share, cost-cutting, and increasing revenues. Pricing strategies, marketing strategies, and product-development strategies are implemented at the functional level of a corporation. An effective strategy is likely to combine several of these elements since they are all interrelated.

Establishing the Strategic Plan

The final and most important step in the strategic planning process is preparation of the strategic plan. But strategy must be formulated partially on the basis of assumptions about certain imponderable factors. These assumptions have to be as realistic as possible for the strategy to be effective. The assumptions are based on analysis of the environment. The uncertainties that make assumptions necessary are generally beyond the organization's control. The assumptions play a major role in setting objectives and establishing a strategy. During the evaluation stage, each alternative is tested against several scenarios that incorporate varying assumptions. Benefits and tradeoffs of alternative strategies are examined and a preferred strategy is selected. Standards are set for measuring performance and results in each key area. According to Drucker there are eight areas in which standards for performance and results have to be set: (1) market standing, (2) innovation, (3) productivity, (4) organizational and financial resources, (5) profitability, (6) manager performance and development, (7) worker performance and attitude, and (8) public responsibility.[12] The strategic plan includes a mission statement, objectives, and a strategy for achieving the objectives. When the strategic plan is established, supporting operational plans can be worked out.

While an organization's fundamental purpose and long-term objectives may not change significantly over long periods of time, the strategic nature and scope of its products, marketing, and technological activities will change in response to new environmental circumstances. As a consequence, periodic review and reappraisal of strategy is necessary. Thus, strategic planning is a never-ending process.

TRENDS Development and the Army's Trend Analysis Process

USACERL developed the prototype TRENDS database in 1991 for the OACE Installations Planning Branch, which was the research project technical monitor, the principal system proponent, and, by definition, the major system user. USACERL developed TRENDS in cooperation with the University of Illinois Department of Urban and Regional Planning.

A literature search was conducted to locate sources of information on global trends affecting Army installation real property management. Collected information on global trends was compiled and categorized. A survey questionnaire for Army installations and facilities experts was prepared, and MACOM and installation planners were surveyed (by mail and telephone interview) on the direct and indirect implications of identified global trends on Army installations. Survey results were summarized and used by a work group of Army planners organized to explore the subject and reach consensus on the effects of global trends on Army installation real property management.

The process of identifying, documenting, and analyzing relevant global trends was accomplished by USACERL and University of Illinois subject matter experts, and influenced by input from MACOM and installation planners via the survey and work group activities. Facts gathered on global trends, trend interrelationships, trend implications, and global trend references were documented in the TRENDS database. As noted previously, the database was developed using the KnowledgePro hypertext

[12] P.F. Drucker, *The Practice of Management*.

microcomputer environment. The hypertext environment is appropriate for such a database because its associative structure promotes aggressive exploration of interrelationships among the data, and its interface helps users learn to use the database quickly.

Although many alternatives were suggested for the operation and maintenance of TRENDS, the system's developers recommended that a single office be staffed with one or two full-time personnel responsible for system management as well as synthesis of external and internal knowledge about global trends.

Table 1 details the steps in the development process of the TRENDS system and database. Additionally, it lists the process used in the identification and analysis of the key global trends that affect Army installation facilities planning and management. The principal process steps are identified in bold type and the subprocess steps are underlined. Italicized text indicates process changes recommended either in USACERL Technical Report (TR) P-91/44 or as a result of activity under Work Unit AH2, "Strategic and Long-Range Planning." The process outlined in Table 1 was the basis for the development of Alternatives 1 and 2, the two methodologies discussed in Chapter 4.

Table 1

Steps in the Development of TRENDS and a Global Trend Analysis Process

Note: text in italics denotes recommended process changes as identified in USACERL TR P-91/44, comments, or notes.

Global Trends Identification

Develop criteria/methodology for selection of emerging global trends.
Identify global trends (raw data) sources: From media, topical literature, experts, *institutes, and agencies.*
Develop classification scheme for global trend experts/raw data sources.
Rank or qualify experts and sources by authority and other factors.
Develop classification scheme for global trends: Political, economic, demographic, environmental, technological, *military and social.*
Scan for/Collect global trends data: From media, literature, and experts.
Categorize global trends by name.
Develop concept and initial database design.
Develop an information file for each identified trend.

Global Trends Analysis

Survey experts to establish global trends directions.
Survey experts to determine global trend potential implications.
System manager (vs users working group) determination of potential global trend implications on Army installations' real property management and relationships/interrelationships.
Identify global trends' Army installations implications, interrelationships, and relationship to ALRFP Goals.
Develop written survey of planning experts.
Survey/Interview MACOM/Installation Experts to determine global trend implications
(Lesson learned: planner surveys were not very useful, and were too time consuming.)
Conduct telephone followup of written survey.
Prepare survey results: Organize survey results; analyze; and prepare summary of findings to lead work group session.
Prepare for working group session/analysis.
Convene workshop: *System manager facilitation of working group session.* Brainstorm global trend implications; reach working group consensus on implications; and rank global trends adding/deleting as required.
Document working group results.
Document global trends implications in TRENDS database: Based on surveys, working group consensus, and TREND developer/system manager analysis.
Analyze TRENDS to determine associative relationships. Direct/indirect relationships among trends and Army installation goals (ALRFP).
Document global trends relationships in TRENDS database.

Table 1 (Cont'd)

TRENDS Database Design and Global Trends Documentation

Design and Develop TRENDS database.

Create information file for each identified trend: Basic global trend issue, archival facts, implications, and relationships (direct and indirect); supplemental data (additional text, statistics, graphics, spreadsheets, and databases); references and cross references; and bibliography (cited references, cross references to related articles, and *uncited references*).

TRENDS Access

TRENDS, as a prototype system, was used only by Installations Planning Branch.

TRENDS System Operation, Maintenance, and Updating

TRENDS, as a prototype system, was used only by Installations Planning Branch.

Recommended System Enhancements and Future Actions

Develop methods for central organization and operation of the TRENDS system: *(1) Within the Corps of Engineers (e.g., Office of Strategic Initiatives, or USACERL Technical Assistance Center [TAC], central to one office, or as distributed tasking among several offices; (2) Contracted to research institute or university, (e.g., USACERL and University of Illinois Department of Urban and Regional Planning; (3) as a joint operation outside the Corps of Engineers (e.g., ODCSOPS as proponent, SSI responsible for TRENDS development and analysis, and USACERL-TAC or Army Environmental Policy Institute (AEPI) responsible for system operation and management.*

Develop TRENDS feedback network: Develop user feedback mechanisms; receive, process and analyze all inputs; and develop methodologies for system manager database revision based on feedback.

Distribute updated versions of the software

Explore concepts for efficient ongoing database update and expansion: Continual scan for emerging global trend information and new sources (organizations and individual experts); identification of related trends, trend relationships, and trend implications; and compilation of bibliographical data.

Explore concepts for TRENDS System operations enhancement: Develop forward and reverse tracking capability of indirect relationships (forward to see trends that are influenced by the chosen trend and backward to see trends that influence the chosen trend); develop graphic connectivity display for visualization of complex relationships among; develop trend-ranking scheme to support contingency plan development (e.g., analytical hierarchy process [AHP] that assigns weighted criterion values to decision alternatives; and develop trend "what-if" scenarios.

4 ALTERNATIVE METHODOLOGIES FOR INCORPORATING TRENDS INFORMATION INTO THE ARMY LONG-RANGE PLANNING PROCESS

Two alternative methodologies for enhancing the way relevant global trends are incorporated into Army strategic planning processes are contrasted with private-sector and TRENDS prototype development processes in this chapter. These strategies were developed in response to lessons learned from the research documented in USACERL TR P-91/44 and later investigations, including the present effort.

Alternative 1 is a limited approach, which focuses on integrating global trends information into the facilities planning process. It might be described as a minimalist approach. Its immediate focus is the Army Long-Range Facilities Plan (ALRFP). Alternative 1 intentionally keeps the number of process participants, computer system complexity, and the level of effort for process operation to a minimum. Nevertheless, it includes global trend experts in the process to enhance database development and analysis. Alternative 1 is presented as a possible first step in the wider implementation of a global trend tracking and analysis system, but even without the second alternative it presents a practical road map for improving the long-range facilities planning process.

Alternative 2 is presented as an ideal, long-range solution to global trends integration. It might be described as the optimum approach because it encompasses Alternative 1, but exploits similar resources and processes to enhance the overall Army strategic planning process. It involves global trends experts as well as all key Army participants in the Army Long-Range Planning System (ALRPS) process. Alternative 2 has been developed to capitalize on the expertise of non-Government strategic futurists and trends experts by soliciting their input while providing a system that they, too, can benefit from. The proposed methodology also has the strong advantage of supporting the ALRPS by promoting communication across Army staff agencies through joint participation in the trend-analysis process and the sharing of trend documentation. The ultimate goal of Alternative 2 is the creation of an Army-wide trend database and analysis process to form the foundation for Army strategic planning.

The reader should note that Alternatives 1 and 2 have in common a substantial number of processes and subprocesses. Each alternative is described in its entirety for continuity of presentation. However, the result is some redundancy in the text. Therefore, the reader may be able to skim some passages in the following discussions without missing essential information.

Alternative 1: Integration of TRENDS Into the ALRFP Process

Alternative 1, a partial or interim solution, varies little from the methodology used in the development of the initial TRENDS prototype. It limits participants to four main groups, uses the existing configuration of TRENDS, and focuses solely on more effective development of the ALRFP. The principal enhancement offered by Alternative 1 is that it includes global trend experts to enhance analysis and database development. It seeks to involve non-Government strategic futurists and trend experts with Army participants in a joint strategic planning process.

The OACE Installations Planning Branch would be the proponent for this modified process and for the TRENDS system. This office is currently responsible for the ALRFP, and would continue to be the principal TRENDS user. TRENDS would become the Army's "corporate database" for information on global trends, containing all basic information on key global trends necessary to support Installations Planning Branch's development of the ALRFP. Global trend experts will be key participants, assisting in the identification, ranking, and analysis of principal trends. Their participation is essential for better understanding the importance of global trends in the development of strategic planning scenarios.

MACOM and installation planners will also be key participants: their expertise is required to determine the implications of global trends on Army installations and facilities. The USACERL Technical Assistance Center (TAC) would provide direct support to the Installations Planning Branch having responsibility for the global trend identification and analysis process as well as TRENDS program and system management. TAC would also be responsible for updating and enhancement of the TRENDS system. Even if the pool of process participants is never broadened to include other Army staff agencies or special functional areas, this methodology would greatly enhance Installations Planning Branch's ALRFP development process.

The current TRENDS database and system would form the basis for the integration of global trends information into the facilities planning process. Furthermore, any further TRENDS updates or expansions would be based on the existing system. Its use would preclude new system development costs, allowing the effort to remain focused on trend identification and analysis. TRENDS would continue to be based on KnowledgePro, or some other full-featured hypertext environment. TRENDS system and database enhancements would still be recommended to enhance the ALRFP development process. Other software and hardware configurations would be possible, but not mandatory.

Global trends would be identified and analyzed for updating and expanding the TRENDS database through a process designed to capitalize on the expertise of all participants. A facilitated working group session would be convened with representatives of private-sector organizations (see Appendix B), the OACE Installations Planning Branch, USACERL, the U.S. Army Engineering and Housing Support Center (USAEHSC), and Army MACOMs and installations to explore the effects of global trends on Army installation real property management and related issues. Experts would be surveyed by mail in advance to identify the relevant trends affecting Army installation facility management, and to define the implications of those trends. Survey findings would be summarized and used as the basis for working group activities.

Results of the survey, workshop sessions, and other investigatory activities would be documented in the TRENDS system for use primarily by Installations Planning Branch, but also by other process participants as requested. All issues, facts, interrelationships, implications, and references identified by the overall process will be documented in the TRENDS database.

Table 2 lists the steps in the proposed ALRFP global trends development and analysis process. The principal process steps are identified in bold text, and the subprocess steps are identified in underlined text. The sections that follow discuss each element of the process in more detail.

Global Trends Identification and Analysis

Because the strategic planning process is cyclical and repetitive, it either begins with or returns to a starting point involving the scanning for and evaluation of global conditions or trends that will affect future scenarios. This first step is founded on, and takes as its initial inputs, the existing prototype TRENDS system and its current database. The current prototype TRENDS system and database were based predominantly on the expertise of USACERL researchers and planning professionals working under contract. In addition, Army headquarters, MACOM, and installation personnel provided inputs on Army installation facilities. The identification and analysis process for Alternative 1 integrates and its success depends on the combined efforts of all participants. The outputs of this first step would be global trend data configured to support the development of the ALRFP by the Installations Support Branch.

Select Existing and New Sources of Expert Knowledge on Pertinent Trends. (Responsibility: USACERL-TAC.) There are numerous experts on global trends and forecasting. Those identified during the development of the TRENDS prototype and this study are listed in Appendix B by trend classification.

Table 2

Alternative 1: Global Trends Identification, Analysis, and Documentation for ALRFP

Global Trends Identification and Analysis

Select existing and new sources of expert knowledge on pertinent trends.
Develop and conduct survey of global trends experts.
Conduct followup telephone survey as required for clarification.
Obtain all reference information for each global trend identified.
Summarize survey results.
Prepare for working group session.
Convene workshop.

Global Trends Documentation in TRENDS Database

Obtain any new reference materials identified during workshop.
Solicit any final comments from participants.
Document working group results in the TRENDS database.

Information Access via TRENDS

Use TRENDS database and applications.
Operate and manage TRENDS.

TRENDS Database Design Update and Interim Global Trends Documentation

Document user comments and modify database as required.
Expand raw data sources from media, topical literature, experts, and organizations.
Enhance TRENDS system capabilities.
Enhance TRENDS information file formats and contents.
Develop criteria and methodologies for analysis of raw data on global trends for:

There are more contacts listed (numerically) than need to be included in the workshop, but no qualitative analysis has been made of the sources and personnel listed. It is recommended that additional experts and sources of raw data on global trends be identified, that they be classified according to current TRENDS classifications, and that they be ranked quantitatively by degree of authority, reputation in their field, and other factors. From existing or new sources, experts would be chosen to participate in the survey and the workshop sessions. To form a more representative survey sample while limiting the working group to a manageable number (10 to 15), the number of experts selected to participate in the survey should be greater than those invited to participate in the working group sessions.

Develop and Conduct Survey of Global Trends Experts. (Responsibility: USACERL-TAC.) It is recommended (but not essential) that a survey of global trends experts be conducted in advance of convening the workshop. This would provide a broader base of data upon which to judge the facilities-related implications of trends, and would serve as a check or confirmation of the outcome of the workshop. It would also provide respondents especially those participating in the workshop time to prepare their responses before the workshop. The survey's general purpose would be to solicit opinions from the expert community on the key global trends that will affect the 10- to 20-year strategic planning time frame (and the ALFRP's 30-year time frame).

In the survey, experts should be asked to identify the top 10 to 20 global trends within their own area of expertise. They should also be asked to discuss the future direction of and the potential facilities implications of their identified top three trends. The survey should also ask that bibliographical references

be provided to document the opinions offered. Survey responses should be a further indicator of the quality of the expert's expertise. Those willing to respond may be more likely to participate thoughtfully in workshop sessions.

If a survey is not conducted, the survey items in Table 2 should still be identified as discussion topics and provided to workshop attendees as agenda items in advance. It will be imperative to the success of the workshop that attendees come prepared to respond to the survey topic items. It should be noted that the time spent in the workshop would need to be extended to accomplish tasks that would have been completed during the pre-workshop survey.

Conduct Followup Telephone Survey as Required for Clarification. (Responsibility: USACERL-TAC.) Telephone followup of the survey should be planned. There will inevitably be a need to clarify survey responses with the participants. Followup would also provide an opportunity to establish personal contact with the experts, which would promote participation.

Obtain All Reference Information for Each Global Trend Identified. (Responsibility: USACERL-TAC.) The TRENDS database could not be created without detailed reference materials. To minimize the amount of time spent obtaining reference materials, experts will be asked to document their survey opinions with citations for available publications and data. Following return of the surveys and before convening the workshop, reference literature would be gathered and documented in the TRENDS database.

Summarize Survey Results. (Responsibility: USACERL-TAC.) The survey process will yield comprehensive rankings of global trends by classification, implications, and related references. Survey results should be collated into a format for easy analysis by the working group. Survey results may be preliminarily documented in the *TRENDS database*.

Prepare for Working Group Session and Analysis. (Responsibility: USACERL-TAC and Installations Planning Branch.) The preliminary identification of experts to participate in the working group should be reevaluated and revised on the basis of survey results. It will also be necessary to select MACOM and installation facilities planning experts to participate. Normal meeting arrangements should be accomplished, including development and distribution of a complete agenda. It is suggested (but not essential) that a professional facilitator be used.

Convene Workshop. (Responsibility: USACERL-TAC and Installations Planning Branch.) One of the most important steps in this process of trend analysis will be the convening of the workshop. The workshop will be timed to correspond with the ALRPS cycle so data collection, analysis, and synthesis can be finished before it is needed for preparation of the ALRFP. The workshop setting will allow for the presentation of results of the survey to a wide audience and effective interaction between futurists and Army planners and facilities experts the former to provide expertise on the global setting for Army installations and facilities, and the latter for their expertise on installations and facilities programs. It is recommended that a professional facilitator be used to direct the workshop. Computer-based decision-support tools are also recommended to accelerate workshop results. Trend analysis might be accomplished by an AHP, which assigns weighted criterion values to decision alternatives.

The first action of the working group would be to review the results of the global trends survey, and confirm or revise the documented rankings. All participants would be asked to discuss additional trends for consideration. Those submitted will be considered along with survey responses. The working group must reach a consensus on the 10 to 20 most significant global trends. Their ranking may or may not agree with the one formulated from the survey. Any variance would be acceptable, and would probably result from the differing makeup of the working group, (i.e., the inclusion of Army planners and facilities experts).

When consensus is reached on the 10 to 20 most significant global trends, implications identified by the experts will be reviewed. Participants will be asked to discuss additional implications for consideration. Brainstorming may be used as a tool to further explore and identify trend implications for Army installation real property management. When a final list of implications is established, the working group will work towards consensus on key implications.

Global Trends Documentation in TRENDS Database

After the working group has reached consensus on all points, the results must be documented in a comprehensive, yet easily accessible fashion. For Alternative 1, the TRENDS system in its current configuration would be used.

Obtain Any New Reference Materials Identified During Workshop. (Responsibility: USACERL-TAC.) Reference citations are initially to have been solicited during the survey and obtained before the workshop. Any additional references identified during the group sessions, or any other needed reference materials, will have to be obtained before final database entry. In addition, if a survey is not conducted before the workshop, all references will have to be obtained at this time.

Solicit Any Final Comments From Participants. (Responsibility: USACERL-TAC.) Following the working group session, it is recommended that a summary of the results be distributed to all survey respondents and working group participants. Additional comments and critiques should also be solicited. This would serve the dual purpose of sharing results with process participants and promoting further exchange of ideas. Also, if respondents are given the results of the process, they should feel encouraged to participate again in the future.

Document Working Group Results in the TRENDS Database. (Responsibility: USACERL-TAC.) After the working group session and receipt of all final comments from participants, the results may be documented in the TRENDS database. Information to be documented would include (1) the 10 to 20 most significant global trends by classification area, (2) issues, facts, implications, and trend interrelationships, (3) reference data and articles, and (4) supplementary data such as graphs, charts, spreadsheets, etc.

Global Trends Information Access via TRENDS

Use TRENDS Database and Applications. (Responsibility: Installations Planning Branch.) After final database entry, TRENDS will be available for immediate use by the Installations Planning Branch for development of the ALRFP and other strategic planning activities. In its current configuration, the TRENDS prototype is best restricted to a single user in a microcomputer environment. Access to TRENDS by multiple users would require duplication and distribution of the software and databases. Although this is possible now, maintenance of the system would be very difficult, because database updates would have to be distributed to all users to ensure system uniformity and integrity.

Operate and Manage TRENDS. (Responsibility: USACERL-TAC.) TAC would operate and manage the TRENDS system primarily for the Installations Planning Branch, supporting other users as required. TAC would be the central point of contact for all issues related to the TRENDS system, and would be responsible for receipt, processing, and documentation of any comments received before a major system update. Major updates will be timed to correspond to the ALRPS cycle. If the system evolves into a multiuser tool, TAC would be responsible for data and system upgrades.

TRENDS Database Design Update and Interim Global Trends Documentation

The last step in the process is one of both maintaining the database and enhancing the operability of the system. With the ALRPS cycle being 2 years in length, the database will soon be out of date if not maintained. Therefore, it is essential that the contents of the database be reviewed and updated in the interim period between workshops. In addition to continually enhancing the database, there are many ways in which the operability of the TRENDS system might be enhanced. Both categories of enhancement are discussed below.

Document User Comments and Modify Database as Required. (Responsibility: USACERL-TAC.) USACERL would be responsible for receiving, processing, and documenting all comments or suggested changes to the TRENDS system received between the regular system updates. Comments for system modification will be evaluated and implemented if appropriate. Database additions made outside of the working group would be labeled as such, and treated as interim entries. Slight modifications might have to be made in the way information is entered into TRENDS to flag changes made in existing database entries. Other changes might best be documented under an expanded "Other Potential Trends" facility.[13] If this facility proves insufficient, additional capabilities for managing these database modifications may have to be developed and added to the TRENDS menu.

Expand Raw Data Sources. (Responsibility: USACERL-TAC.) USACERL would be responsible for continuous expansion of sources for raw data on global trends from the mass media, professional and technical literature, individual experts, and organizations.

Enhance TRENDS System Capabilities. (Responsibility: USACERL-TAC.) USACERL would be responsible for exploring and developing any system modifications. Suggested modifications include:

1. Development of forward and reverse capability for tracking direct and indirect relationships.

2. Development of trend-ranking schemes to support development of alternative strategies or contingency plans (e.g., through an analytical hierarchy process (AHP) that assigns weighted criterion values to decision alternatives).

3. Development of trend-related "what-if" scenarios.

4. Evaluation of new hardware platforms, existing software upgrades, alternative software packages, and, specifically, consideration for using Knowledge Garden's *KnowledgePro for Windows*.

Enhance TRENDS Information File Formats and Contents. (Responsibility: USACERL-TAC.) USACERL would be responsible for exploring and developing any database display modifications. A suggested modification is the development of graphic connectivity displays that clearly illustrate interrelationships among trends.

Develop Criteria and Methodologies for System Operator Analysis of Raw Data. (Responsibility: USACERL.) USACERL would be responsible for exploring and developing new methodologies for system manager/operator information processing. Suggested topics include:

1. Synthesis of expert information and data scanned from the literature.

[13] I.R. Adiguzel, T.J. Kim, and D.L. Fields, p 9.

2. Identification of the potential implications of each trend on real property management at the installation level.

3. Identification of the interrelationships among trends.

4. Identification of the relationships of trends to The Army Plan (TAP) and ALRPG goals and objectives.

5. Identification of quantitative relationships between key trends and Army Master Planning Capital Investment Strategy (CIS) facility category groups.

Alternative 2: Integration of Global Trends Analysis Into the ALRPS Process

As noted at the beginning of this chapter, Alternative 2 is an ideal or long-range solution to the efficient integration of global trends into the Army planning process. It is a more comprehensive approach, proposed to operate in conjunction with the Army Long-Range Planning System (ALRPS) process, and is a further departure from the original TRENDS prototype development process than Alternative 1. This alternative seeks the widest feasible range of participants, requires many enhancements to the existing configuration of TRENDS, and addresses expanded goals related to effective development of the Army Long Range Planning Guidance. The ALRPG, in turn, would enhance the development of guidance for each of the Army functional or special areas. Alternative 2 involves global trend experts in the process for the same benefits discussed for Alternative 1 above. However, this alternative further involves Army staff agencies and representatives from functional and special areas to enhance the Army strategic planning process. The process participants and their relationships to one another are depicted in Figure 2.

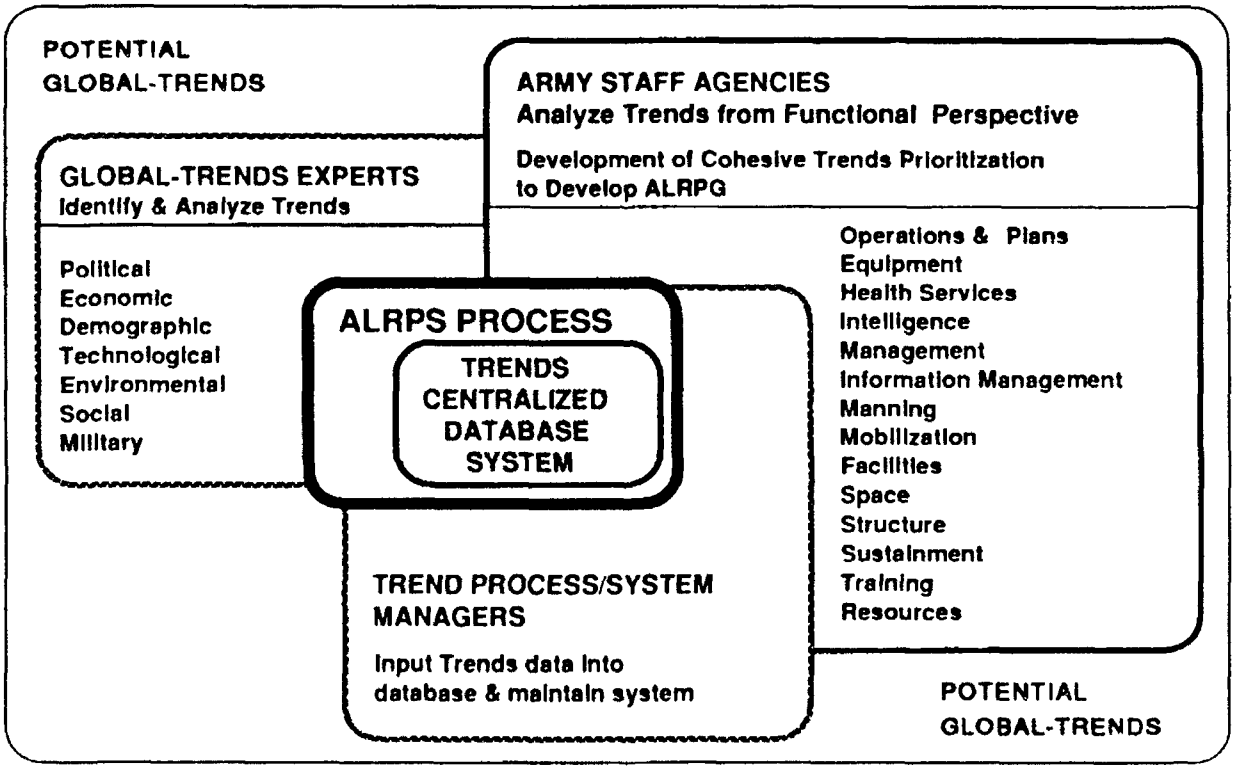


Figure 2. ALRPS/TRENDS Process Participants and Relationships.

In Alternative 2, the Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS) would be the proponent for both this expanded process and for TRENDS. (ODCSOPS currently exercises staff supervision for the execution of the ALRPS.) Representatives of each Army staff agency and functional or special areas would be the principal system users. TRENDS would become the Army's "corporate database" for information on global trends, containing all the basic information necessary on key global trends to support development of the ALRPG and subordinate plans prepared by each of the Army staff agencies (e.g., the ALRFP as prepared by the OACE Installations Planning Branch). As in Alternative 1, non-Government global trend experts would be key participants. In the place of the installations and facilities experts in Alternative 1, Army staff agencies and representatives of functional and special areas would be included. Their coordinated involvement is necessary to address the implications of global trends across the Army, and enhance communication and coordination across Army elements. ODCSOPS would be supported in its efforts by assistance from the U.S. Army War College, SSI and USACERL-TAC. SSI would be responsible for the global trends development and analysis process, while the USACERL-TAC would provide support as TRENDS program and system manager, including all update and enhancement of the TRENDS system.

The current TRENDS database and system could form the basis for integration of global trends analysis into the ALRPS process, and could be the foundation of any expanded TRENDS system. TRENDS might continue to be based on the KnowledgePro hypertext environment for an interim period. The need to enable multiple users to access information from TRENDS simultaneously while addressing the multiplicity of information needs by the various ALRPS participants, however, will ultimately require alternative hardware (and possibly alternative software) configurations.

As in Alternative 1, the identification and analysis of global trends, either for updating and expanding the TRENDS database or for a newly configured system for documenting global trends, would be through a survey and workshop process involving all participants, capitalizing on their individual areas of expertise. A facilitated working group session (or series of sessions) would be convened with key representatives from selected organizations (see Appendix B), Army staff agencies,[4] ODCSOPS, SSI, and USACERL addressing ALRPS-related topics. Sessions would explore the effects of key global trends on Army strategic planning, the implications and interrelationships among global trends across Army functional areas, and related issues. Global trend experts and Army representatives alike would be surveyed by mail before the workshop to identify key global trends and define trend implications. Survey results would be summarized and used as the basis for workshop activities.

Results of the survey, workshop sessions, and related studies would be documented in TRENDS or a newly configured system. The system would be for use primarily by ALRPS process participants, but also would be available to other process participants as requested. Global trends issues, facts, interrelationships, implications, references, and other elements required by the various Army staff agencies would all be documented in the TRENDS database.

Table 3 and Figure 3 below provide a detailed listing and graphic illustration of the steps in the proposed ALRPS global trends identification and analysis process. The principal process steps are identified in bold text and subprocess steps are identified in underlined text.

Expert Identification of Key Emerging Global Trends

As in Alternative 1, the starting point for this methodology cyclically returns to the scanning for and evaluation of key global trends that will affect future scenarios. This first step is founded on, and takes

[4] AR 11-32, Table 1-1

Table 3

Alternative 2: ALRPS Global Trends Identification and Analysis Process

Expert Identification of Key Emerging Global Trends

- Select existing expert knowledge sources and scan for new sources
- Develop and conduct survey of global trends experts
- Conduct telephone followup survey as required for clarification of written responses
- Obtain all reference information for each key global trend
- Summarize survey results
- Document survey results in TRENDS database

TRENDS Database and System Enhancement

- Modify TRENDS to accommodate new database elements and system requirements
- Develop jointly organized and operated system management of TRENDS

Identification of Implications of Key Emerging Global Trends

- Identify points of contact for all represented Army elements
- Develop and conduct survey of represented Army agencies
- Conduct telephone followup as required for clarification
- Summarize Army staff agency survey results

Synthesis of Global Trends Information

- Prepare survey findings for working group analysis
- Convene Workshop
- Summarize ALRPS Workshop results and document in TRENDS database
- Obtain any new reference sources necessary to document workshop results
- Solicit feedback on results of ALRPS process from all participants

Global Trends Documentation and Dissemination

- Summarize Workshop Participant Feedback
- Document final results in updated TRENDS database

Global Trends Information Access via TRENDS

- Use TRENDS database and applications
- Operate and manage TRENDS

TRENDS Database Design Update and Interim Global Trends Documentation

- Document user comments as received and modify database as required
- Evaluate and incorporate suggested modifications of TRENDS database design as appropriate
- Enhance TRENDS feedback network capabilities
- Expand raw data sources
- Expand TRENDS database
- Enhance TRENDS system capabilities
- Enhance TRENDS information file formats and contents
- Develop criteria and methodologies for system operator analysis of raw data on global trends

its initial inputs from, the existing TRENDS system database. This process step of identification and analysis integrates (and its success depends on) the combined efforts of all process participants. The outputs of this first step will be global trend data configured to support the development of the ALRPG and various Army staff agency plans.

Select Existing Expert Knowledge Sources and Scan for New Sources. (Responsibility: SSI.) There are currently numerous experts on global trends and forecasting. Those identified during the development of the TRENDS prototype and this study are listed in Appendix B by trend classification type. More contacts are listed than need be included in the workshop process, but no qualitative analysis has been made of the contacts listed. It is recommended that additional sources of raw data on global trends be identified, and that they be classified as political, economic, demographic, environmental, technological, military, or social. The new sources should be ranked quantitatively by authority, professional reputation, or other factors. From both existing and new sources, experts would be selected to participate in the survey and workshop sessions. To form a more representative survey sample while limiting the working group to a manageable number (10 to 15), the number of experts selected to participate in the survey should be greater than those that participate in the working group sessions.

Develop and Conduct Survey of Global Trends Experts. (Responsibility: SSI/USACERL-TAC.) A survey of global trend experts should be conducted in advance of the workshop, as in Alternative 1. The purpose of the survey is the same: to solicit from the experts their opinions on which key global trends will affect the 10- to 20-year time frame covered by ALRPG. In the survey, experts would be asked to identify the top 10 to 20 global trends within their area of expertise. They would also be asked to discuss the future direction, and potential implications of the top three trends they believe will affect the future missions of the Army. The survey should also request that bibliographical references be provided to document the experts' positions. *Those who are willing to respond may be more willing to* participate in the workshop.

Conduct Followup Telephone Survey as Required for Clarification. (Responsibility: USACERL-TAC, SSI.) Telephone followup of the survey should be planned. There will inevitably be a need to clarify survey responses with the participants. Followup would also provide an opportunity to establish personal contact with the experts, which would promote participation.

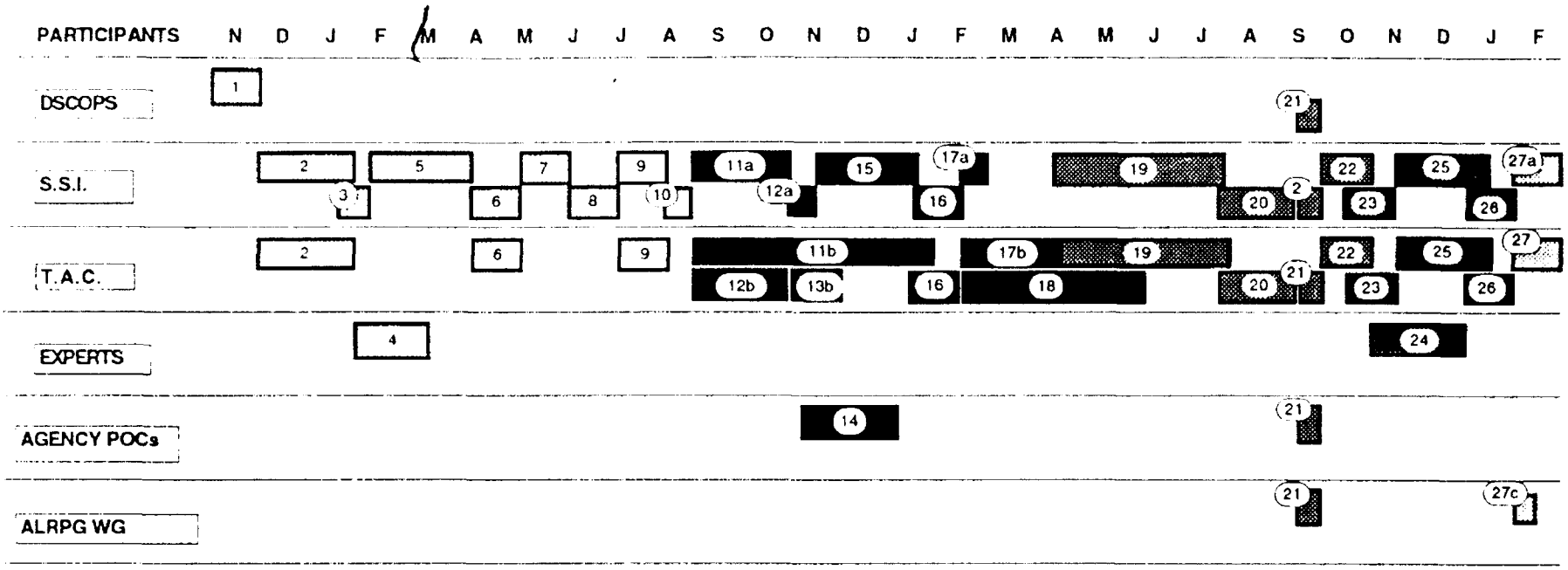
Obtain All Reference Information for Each Global Trend Identified. (Responsibility: USACERL-TAC.) The TRENDS database could not be created without detailed reference materials. To minimize the amount of time spent obtaining reference materials, experts will be asked to document their survey opinions with citations for available publications and data. Following return of the surveys and before convening the workshop, reference literature would be gathered and documented in the TRENDS database.

Summarize Survey Results. (Responsibility: SSI.) The survey process will yield comprehensive rankings of global trends by classification, implications, and related references. Survey results should be collated into a format for easy analysis by the working group. Survey results may be preliminarily documented in the TRENDS database.

Document Survey Results in TRENDS Database. (Responsibility: USACERL-TAC.) Initial survey results should be entered into the TRENDS database by classification, including name, key issues, implications, references, expert comments, and ranking of importance.

TRENDS Database end System Enhancement

Modify TRENDS To Accommodate New Database Elements and System Requirements. (Responsibility: USACERL-TAC.) Several modifications of the TRENDS system will be necessary to



STEPS IN ALTERNATIVE 2 PROCESS:

1 Develop Charter
2 Develop Expert Survey & Identify Trends Experts
3 Send Surveys to Experts
4 Respond to Surveys
5 Analyze Survey Responses
6 Identify Data Sources
7 Request Data Sources
8 Analyze Data
9 Structure/Refine Database Format and Content
10 Send Data to TAC
11a Develop Staff Agency Survey & Identify Staff Agency POCs
11b Start Data Entry
12a Send Surveys to Staff Agency POCs
12b Start Reference Acquisition
13a Request References
14 Respond to Surveys
15 Analyze Survey Responses
16 Refine Database Format and Content
17a Send Data to TAC
17b Scan/Input References to Database
18 Start Data Entry
19 Finalize Format & Data Display for ALRPG Working Group
20 Prefinalize Database
21 ALRPG Working Group Meeting (ALRPS AR 11-32 Process)
22 Compile Results of ALRPG Working Group Meeting into Database
23 Solicit Comments from Experts
24 Comment on Results of ALRPG Working Group Meeting
25 Revise Database
26 Recompile/Finalize Database
27a Approve Database for Final Distribution
27b Ensure Database is Accessible by Trends Data Users
27c Solicit Post Use Comments From Users

Note: Information Access Via TRENDS is an ongoing process

Figure 3. Timeline for Alternative 2 Processes.

accommodate new database elements and system requirements. TRENDS may continue to be based on the KnowledgePro hypertext environment for an interim period, but system modifications will have to address expanded requirements to meet the information needs of all participating Army agencies. The upgrade or alteration of TRENDS hardware and software configurations will also have to be considered, including a centrally managed and accessable database system, to accommodate multiple users who may read TRENDS data at the same time.

Develop Jointly Organized and Operated System Management of TRENDS. (Responsibility: ODCSOPS, SSI, and USACERL-TAC.) Arrangements for joint management and maintenance of TRENDS would be established through Memorandum of Agreement (MOA). ODCSOPS would be the proponent, SSI would lead in analysis, and USACERL would be responsible for system operation and management.

Identification of Implications of Key Emerging Global Trends

The first step in the ALRPS global trends analysis process would be the identification by experts of key emerging trends. This step involves input by the system's principal end users representatives of all Army elements included in the ALRPS process. The end users of TRENDS and the ALRPG will ultimately make the key decisions and prioritize all relevant global trends. Their coordinated involvement is necessary to address the full implications of global trends across the entire Army, and to enhance strategic plan development through better communication and coordination across Army elements.

Identify Points of Contact for All Represented Army Elements. (Responsibility: SSI.) The 13 Army staff agencies currently involved in ALRPS are identified in AR 11-32, Table 1-1. Points of contact (POCs) for each of these staff agencies should be selected for participation in both a pre-workshop survey and the ALRPS workshop.

Develop and Conduct Survey of Represented Army Agencies. (Responsibility: SSI and USACERL-TAC.) Survey POCs for represented Army agencies in advance of convening the workshop. This would provide a broad base of data upon which to base workshop discussions and against which individuals could evaluate any resulting group consensus. It would also provide respondents especially those who will participate in the workshop time to prepare beforehand, to promote quality. The survey would solicit from the military community its opinions on the key global trends that will affect the 10- to 20-year time frame of the ALRPG.

In the survey, Army agency POCs should be asked to rank the top 10 to 20 global trends from those identified in the survey of experts. They should also be asked to discuss the potential implications of the top three trends identified by the experts for the future missions of the Army in their own areas of endeavor. Interrelationships among trends would also be discussed. The identification of additional key global trends should be solicited, along with pertinent bibliographical references.

Conduct Telephone Followup as Required for Clarification. (Responsibility: SSI and USACERL-TAC.) There will inevitably be reason to clarify initial survey results with respondents. This would also provide an opportunity to establish a dialog with Army POCs to promote cross-agency networking.

Summarize Army Staff Agency Survey Results. (Responsibility: SSI.) The survey process will yield comprehensive ranked listings of global trends, by topic classification, implications, interrelationships, and pertinent references. Survey results should be collated into a format for easy analysis by the working group.

Document Revised Data in TRENDS Database. (Responsibility: USACERL-TAC.) Additional survey results would be entered into the TRENDS database by classification, including name, key issues, implications, interrelationships, references, expert comments, and rankings.

Synthesis of Global Trends Information

Prepare Survey Findings for Working Group Analysis. (Responsibility: ODCSOPS, SSI, and USACERL-TAC.) The preliminary identification of experts to participate in the working group should be reevaluated and revised on the basis of survey results. It will also be necessary to select HQDA and staff agency personnel to participate. Normal meeting arrangements should be accomplished, including development and distribution of a complete agenda. The assistance of a professional facilitator should be arranged.

Convene Workshop. (Responsibility: ODCSOPS, SSI, and USACERL-TAC.) One of the most important steps in this process of trend analysis will be the convening of the workshop in conjunction with the ALRPS process Long-Range Planning Working Group, as specified under AR 11-32 to execute the ALRPS. The workshop setting will allow for the presentation of the survey results to a wide audience and for effective interaction among global trend experts, forecasters, and Army personnel the former to provide their expertise on the emerging global trends, and the latter for their insights on future Army goals and missions. It is recommended that a professional facilitator be used to direct workshop activities. Computer-based decision-support tools are also recommended to accelerate workshop results. Trend analysis might be accomplished by an AHP, which assigns weighted criterion values to decision alternatives.

The first action of the working group would be to review the results of the global trends survey, and confirm or revise the documented rankings. All participants would be asked to discuss additional trends for consideration. Those submitted will be considered along with survey responses. The working group must reach a consensus on the 10 to 20 most significant global trends. Their ranking may or may not agree with those from the surveys. Any variance would be acceptable, and would probably result from the differing makeup of the working group, (i.e., the inclusion of Army planners and facilities experts).

When consensus is reached on the 10 to 20 most significant global trends, implications identified in the surveys. Participants will be asked to discuss additional implications for consideration. Brainstorming may be used as a tool to further explore and identify trend implications for Army missions. When a final list of implications is established, the working group will work towards consensus on key implications.

The first action of the working group will be to review the results of the global trends surveys, and confirm or revise the documented rankings. All participants will be asked to offer additional trends for consideration. Those submitted will be considered along with survey responses. The working group must reach a consensus on the top 10-20 key global trends. Their ranking may or may not agree with that from the surveys. Any variance is acceptable, and most likely will result due to the differing makeup of the working group.

Once consensus is reached on the top 10-20 key global trends, implications identified by the trend experts and Army Staff agency/functional and special areas will be reviewed. Participants will be asked to offer additional implications for consideration. Brainstorming may be used as a tool to further explore and identify trend implications on Army missions. Once a final listing of implications is established, the working group will work towards consensus key implications.

Summarize ALRPS Workshop Results and Document in TRENDS Database. (Responsibility: SSI and USACERL-TAC.) When the working group has reached consensus on all points, the results would be documented in a comprehensive, yet easily accessible fashion. For Alternative 2, the modified TRENDS system would be used.

Obtain Any New Reference Sources Necessary to Document Workshop Results. (Responsibility: USACERL-TAC.) Reference citations are initially to have been solicited during the survey and obtained before the workshop. Any additional references identified during the group sessions, or any other needed reference materials, will have to be obtained before final database entry.

Solicit Feedback on Results of ALRPS Process From all Participants. (Responsibility: SSI and USACERL-TAC.) Following the working group session, it is recommended that a summary of the results be distributed to all survey respondents and working group participants. Additional comments and critiques should also be solicited. This would serve the dual purpose of sharing results with process participants and promoting further exchange of ideas. Also, if respondents are given the results of the process, they should feel encouraged to participate again in the future.

Global Trends Documentation and Dissemination

Summarize Workshop Participant Feedback. (Responsibility: SSI and USACERL-TAC.) All final comments from workshop participants will be summarized for entry into the TRENDS database.

Document Final Results in Updated TRENDS Database. (Responsibility: USACERL-TAC.) After the working group session and receipt of all final comments from participants, the results may be documented in the TRENDS database. Information to be documented would include (1) the 10 to 20 most significant global trends by classification area, (2) issues, facts, implications, and trend interrelationships, (3) reference data and articles, and (4) supplementary data such as graphs, charts, spreadsheets, etc.

Global Trends Information Access via TRENDS

Use TRENDS Database and Applications. After the final database entry, TRENDS will be available for immediate use by Army personnel for development of the ALRPG, development of guidance for each Army functional and special area, and other strategic planning activities. Access to TRENDS will not be restricted to Army personnel, but will also include the experts that participated in the process. The current TRENDS configuration being microcomputer-based, can be efficiently used only by a limited number of individuals. Multiple-user access to TRENDS would require duplication and distribution of the system software and databases. Updates would be possible only by redistribution to all users. Although this is possible now, system enhancements would be highly advisable to ensure system uniformity and integrity.

Operate and Manage TRENDS. (Responsibility: SSI and USACERL-TAC.) ODCSOPS would be the principal POC for all global trends issues, USACERL would be POC for all issues related to the TRENDS system, and SSI would be POC for trend identification and analysis. SSI would be responsible for receipt, processing, and analysis of any comments received before a major system update, and USACERL would be responsible for recording the results in TRENDS. Major updates would be timed to correspond to the ALRPS cycle.

TRENDS Database Design Update and Interim Global Trends Documentation

The last step in the process is one of both maintaining the database and enhancing the operability of the system. With the ALRPS cycle being 2 years in length, the database will soon be out of date if not maintained. Therefore it is essential that the contents of the database be reviewed and updated in the

interim period between workshops. In addition to continually enhancing the database, there are many ways in which the operability of the TRENDS system might be enhanced. Both categories of enhancement are discussed below.

Document User Comments as Received and Modify Database as Required. (Responsibility: USACERL-TAC.) As in Alternative 1, USACERL would be responsible for receiving, processing, and documenting all comments or suggested changes to the TRENDS system received between the regular system updates. Comments for system modification will be evaluated and implemented if appropriate. Database additions made outside of the working group would be labeled as such, and treated as interim entries. Slight modifications might have to be made in the way information is entered into TRENDS to flag changes made in existing database entries. Other changes might best be documented under an expanded "Other Potential Trends" facility.[15] If this facility proves insufficient, additional capabilities for managing these database modifications may have to be developed and added to the TRENDS menu.

Evaluate and Incorporate Suggested Modifications of TRENDS Database Design as Appropriate. Responsibility: USACERL-TAC.) USACERL would be responsible for evaluating and incorporating suggested modifications of the TRENDS database design.

Enhance TRENDS Feedback Network Capabilities. (Responsibility: USACERL-TAC.) USACERL would be responsible for developing and implementing enhancements of the feedback capabilities of TRENDS.

Expand Raw Data Sources. (Responsibility: SSI and USACERL-TAC.) SSI and USACERL would be responsible for continuous expansion of global trend information sources from the mass media, professional and technical literature, individual experts, and organizations.

Expand TRENDS Database. (Responsibility: SSI and USACERL-TAC.) SSI and USACERL would be responsible for scanning for new information on emerging global trends, identifying related global trends, global trends relationships, Army-wide implications, and compiling bibliographical data.

Enhance TRENDS System Capabilities. (Responsibility: SSI and USACERL-TAC.) SSI and USACERL would be responsible for exploring and developing system modifications. Suggested modifications include:

1. Development of forward and reverse capability for tracking direct and indirect relationships.

2. Development of trend-ranking schemes to support development of alternative strategies or contingency plans (e.g., through an analytical hierarchy process (AHP) that assigns weighted criterion values to decision alternatives).

3. Development of trend-related "what-if" scenarios.

4. Evaluation of new hardware platforms, existing software upgrades, alternative software packages, and, specifically, consideration for using Knowledge Garden's *KnowledgePro for Windows*.

Enhance TRENDS Information File Formats and Contents. (Responsibility: USACERL-TAC.) USACERL would be responsible for exploring and developing any database display modifications. A

[15] I.R. Adiguzel, T.J. Kim, and D.L. Fields, p 9.

suggested modification is the development of graphic "connectivity" displays that clearly illustrate interrelationships among trends.

Develop Criteria and Methodologies for System Operator Analysis of Raw Data. (Responsibility: USACERL.) USACERL would be responsible for exploring and developing new methodologies for system manager/operator information processing. Suggested topics include:

1. Synthesis of expert information and data scanned from the literature.

2. Identification of the potential implications of each trend on each Army staff agency functional and special area.

3. Identification of the interrelationships among trends.

4. Identification of the relationships of trends to The Army Plan (TAP) and ALRPG goals and objectives.

5 SUMMARY AND RECOMMENDATIONS

Summary

The Army's future will be dominated by change. The manner in which the Army deals with change needs to be effectively incorporated into the methods by which planners at all levels determine both long-range strategic requirements and day-to-day decisions.

Current procedures established in the ALRPS process are an acceptable means of identifying important issues that will shape the Army for the next 10 to 20 years and for disseminating the vision and guidance of the Army senior staff. The USACERL prototype TRENDS system demonstrates the usefulness of an intelligent database management system as a tool to support the strategic planning process for facilities, as well to provide specific references for issues with possible facility engineering and demand implications. The two alternative methodologies presented in this report demonstrate similar processes for efficiently providing information to Army planners on important global trends, and on the implications of those trends for Army strategic planning. Alternative 1 addresses mainly the facilities-related long-range planning process; Alternative 2 addresses an Army-wide spectrum of issues.

The current process and tools fall short in their capability to generate guidance that can easily be translated both into (1) specific long-range planning strategies or (2) actions in support of those strategies at the operational level. Inaccurate planning decisions affecting the Army's inventory of built facilities could constrain the Army from being able to react rapidly and cost-effectively to fulfill varied future missions. It could be highly beneficial to give senior Army leadership in all functional areas the capability to more effectively develop plausible future scenarios upon which operating-level managers can base their day-to-day decisions as well as their future plans.

The authors have developed two versions of a new model for long-range planning that addresses the implications of long-term global trends for both strategic planning and daily operations. Alternative 1 integrates the USACERL-developed TRENDS system into a process that uses a dynamic expert knowledge base to enhance the ALRFP. This alternative, a narrowly focused approach that draws knowledge from a limited base of experts, would aim at improving the quality and applicability of information upon which installation-level facilities planners base their decisions. Alternative 2 encompasses Alternative 1, but addresses the entire scope of Army strategic planning. While similar in many respects to Alternative 1, Alternative 2 draws upon a much wider base of world-class trends expertise and involves the direct participation of managers from all key Army staff agencies and functional or special areas.

Recommended TRENDS Enhancements

The TRENDS system, as now configured, is defined to meet the specific needs of the OACE Installations Planning Branch and development of the ALRFP. To meet the heavier demands of supporting the ALRPS process (especially under Alternative 2) and provide a tool for more effective management of the global trends analysis process, the TRENDS system will require important enhancements. It is recommended that:

1. Database contents should be evaluated and expanded to accommodate information needs of all applicable Army users. Requirements of the Army staff agencies should be evaluated, and changes to the database developed.

2. A scheme for displaying trend status should be developed. This information might include date of entry into the database and process status (e.g., "As submitted by expert" or "In ALRPS review").

3. A scheme for identifying all sources of data and analysis recorded in TRENDS should be developed to document the information's validity and quality for system users, and to provide archival information for system managers.

4. Schemes for displaying user comments on both database and systems operations should be developed. This information would promote discussion in a centrally operated and maintained system and display interim trend data. It would further serve as archival information for system managers.

5. TRENDS should be modified to accommodate simultaneous multiple users while protecting the uniformity and integrity of database and system.

6. Enhanced means for effectively displaying the implications of trends or provide other outputs for effective use by Army strategic planners should be explored. "What-if" scenarios could be developed and displayed, based on documented trend interrelationships and implications. This data synthesis would be helpful to planners by displaying alternative futures scenarios, and their probabilities of occurrence.

7. More effective means should be explored for operation of a centrally operated and managed database system. Support for different hardware platforms and software technologies should be considered.

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APPENDIX A: Sample TRENDS Information File

ENVIRONMENTAL-HAZARDOUS WASTE CLEANUP

ISSUE:

The United States produces over 260 million metric tons of hazardous waste each year - more than 1 ton for every person in the country. Through pollution of the air, the soil, and the water supplies, hazardous substances pose both short- and long-term threats to human health and environmental quality.

[7/90] FACTS:

The chief producers of hazardous wastes are the chemical and petrochemical industries. The military generates about 750,000 tons of hazardous wastes annually. For over half a century, untold amounts of fuels, oils, solvents, paints, sludges, acids, heavy metals, asbestos, and noxious chemicals have been disposed of by open burning, dumping in lagoons and landfills, or pouring down sewers. Estimates of the number of U.S. hazardous wastes disposal sites vary, but at least 15,000 uncontrolled hazardous waste landfills have been identified in the U.S. along with 80,000 contaminated surface lagoons. Curtailing the production of hazardous radioactive substances may be the most critical of all hazardous waste challenges, as many of these substances have no known technological detoxifiers and will remain dangerous for thousands of years. U.S. DOE operates 14 weapons-related nuclear reactors. An investigation by the U.S. General Accounting Office discovered radioactive materials in the groundwater at DOE nuclear weapons facilities at Hanford, Washington, and at the Savannah River plant in Aiken, South Carolina. The radiation of the drinking water was over 400 times greater than the proposed drinking water standard. The greatest problem facing the nuclear industry, both commercial and federal, is that no long-term solution for waste disposal has been developed. Disposing of waste from the nuclear industry is becoming increasingly expensive. The Department of Energy estimates costs of $100 billion just to clean up its nuclear weapons facilities.

IMPLICATIONS:

As environmental concerns over hazardous wastes increase, Army installations will be held responsible for any wastes deemed hazardous that are generated on an installation. Such wastes include solvents used in degreasing operations, paints, caustics, and corrosives. Also, print plants and photo labs generate hazardous wastes such as fixers, developers, and inks. Hospital laboratories use formaldehyde and picric acid. Plus, any facility with a generator will have hazardous wastes. Airfields use solvents and handle JP4. Real property management is affected as training programs will be required to teach soldiers about hazardous wastes and how to properly dispose of them. Each installation will be financially responsible for disposing of hazardous wastes by 1991. Special arrangements must be made to dispose of these wastes.

SUPPLEMENTAL DATA:

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Social Activism
Conventional Forces Reduction in Europe
Land Use Management

ADDITIONAL SOURCES:

Army Corp of Engineers Environmental Program
Board of Army Science and Technology
EPA Superfund Priorities List
Resource Conservation and Recovery Act (RCRA)

APPENDIX B: Directory of Trends Experts

TRENDS Database Points of Contact

NAME	TITLE/POSITION	ORGANIZATION	ADDRESS	PHONE NUMBER	PUBLISHED WORK
POLITICAL:					
Lt. Col. Robert Hess	Asst for East Africa in the Office of the Asst. Secretary of Defense	International Security Affairs (Africa Region)	U.S. House of Representatives Committee on Foreign Affairs 2401 Rayburn House Office Bd Washington, DC 20515	not available	"Let's End U.S.-Soviet Competion in Horn of Africa," *Armed Forces Journal International*
Lt. Col. Bryant Shaw	Policy Analyst in the Office of the Assistant Secretary of Defense	International Security Affairs (Africa Region)	U.S. House of Representatives Committee on Foreign Affairs 2401 Rayburn House Office Bd. Washington, DC 20515	not available	"Let's End U.S.-Soviet Competion in Horn of Africa," *Armed Forces Journal International*
Michael T. Klare	Five College Association Professor of Peace and World Security Studies	Hampshire College	Amherst, Massachusetts	(413)549-4600 ext. 563	"A Blueprint for Endless Intervention," *The Nation*
Brian Field	Assistant Director	NATO Economic Directorate	not available	not available	"Economic Theory, Burden Sharing and the NATO Alliance," *NATO Review*
Peter Grier	Staff Writer	The Christian Science Monitor	not available	not available	*The Christian Science Monitor*
David M. Keithly, PhD	Asst Professor for International Relations	Troy State University w/U.S. forces in Europe	Troy, Alabama	(205)566-3000	"Short Range Nuclear Force" *National Defense*
John D. Steinbruner	Director	Brookings Institute Foreign Policy Studies Program	1775 Massachusetts Ave., N.W. Washington,DC 20036	(202)797-6010	"The Redesign of European Security," *The Brookings Review*

TRENDS Database Points of Contact

NAME	TITLE/POSITION	ORGANIZATION	ADDRESS	PHONE NUMBER	PUBLISHED WORK
Horst Afheldt	Heads a working group of nonoffensive defense	Max Planck Society	Starnberg, West Germany	not available	*Bulletin of Atomic Scientists*
Stephen J. Flanagan	Senior fellow at the Strategic Concepts Development Center	National Defense University, Washington DC	Washington DC 20036	(703)693-8331	Bulletin of Atomic Scientists
Randell Forsberg	Director	Institute for Defense and Disarmament Studies	Brookline, Massachusetts	not available	Bulletin of Atomic Scientists
James T. Hackett	Policy Operations Manager (also member of the President's General Advisory Committee on Arms Control	Titan Systems	5910 Pacific Central Blvd. San Diego, CA 92121	(619)453-9500	Global Affairs
Stanley Hoffman	Chairman of Center for European Studies	Harvard University	Cambridge, Massachusetts	(617)495-4303 ext. 290	Current
David Newsome	Director of the Institute for the Study of Diplomacy (former undersecretary of state)	Georgetown University	Georgetown, Kentucky	(502)863-8011 info.	The Christian Science Monitor
Col. Robert J. Berens	Retired as Chief of Public Affairs	Army Material Command (Retired)	not available	not available	National Defense
Harry Harding	Senior Fellow	Brookings Institute Foreign Policy Studies Program	1775 Massachusetts Ave., N.W. Washington, DC 20036	(202)797-6105	The Brookings Review
Ed A. Hewett	Senior Fellow	Brookings Institute Foreign Policy Studies Program	1775 Massachusetts Ave., N.W. Washington, DC 20036	(202)797-6105	The Brookings Review

TRENDS Database Points of Contact

NAME	TITLE/POSITION	ORGANIZATION	ADDRESS	PHONE NUMBER	PUBLISHED WORK
Gen. James J. Lindsay	Commander in Chief	U.S. Special Operations Command	not available	not available	Defense 90
ECONOMIC:					
Barry P. Bosworth	Senior Fellow	Brookings Institute Economic Studies Program	1775 Massachusetts Ave. N.W. Washington DC 20036	(202)797-6111	The Brookings Review
Robert Z. Lawrence	Senior Fellow	Brookings Institute Economic Studies Program	1775 Massachusetts Ave. N.W. Washington DC 20036	(202)797-6111	The Brookings Review
Thomas E. Mann	Director & Former Executive Director of the American Political Science Association	Brookings Institute Economic Studies Program	1527 New Hampshire Ave. N.W. Washington DC 20036	(202)797-6050	The Brookings Review
Charles Schultze	Director	Brookings Institute Economic Studies *Program*	1775 Massachusetts Ave. N.W. Washington DC 20036	(202)797-6111	The Brookings Review
Allen Hornblum	Professor of Political Science (also a board member of the Pennsylvannia Prison Society)	Temple University	Ambler, Pennsyvania	not available	The Privatization Review
David I. Hitchcock	Visiting Senior Fellow (also a Career Minister in the U.S. Foreign Service)	Center for Strategic and International Studies	not available	not available	The Christian Science Monitor
William H. Taft IV	Deputy Secretary of Defense	U.S. Government	not available	not available	Defense Issues

TRENDS Database Points of Contact

NAME	TITLE/POSITION	ORGANIZATION	ADDRESS	PHONE NUMBER	PUBLISHED WORK
Klaus Burmeister	Attorney (specializing in Euopean Community - U.S. transactions)	Baker & McKensie (Intern'l Law Firm)	Embarcadero Center San Francisco, CA	(415)576-3000	USA Today
Phillip L. Bolte	BG Retired (1980) Independent consultant	U.S. Army (Retired)	not available	not available	National Defense
Peter Grier	Staff Monitor	The Christian Science Monitor	not available	not available	The Christian Science Monitor
John Kent Hill	Senior Economist and Policy Advisor	Federal Reserve Bank of Dallas	not available	not available	Economic Review
Fred C. Bergsten	Director (also served as Asst. Secretary of Treasury 1977-81)	Institute for International Economics	11 Dupont Circle N.W. Washington DC 20036	(202)328-9000	Economy Insights
Paul J. Nickels	Public Affairs Specialist	Federal Reserve Bank of Cleveland	Research Department P.O. Box 6387 Cleveland, OH 44101	(216)579-2000	Economic Commentary
John J. Erceg	Assistant Vice-President	Federal Reserve Bank of Cleveland	Research Department P.O. Box 6387 Cleveland, OH 44101	(216)579-2000 ext. 2024	Economic Commentary
Jeffrey R. Henig	Associate Professor of Political Science	George Washington University	not available	not available	Political Science Quarterly
Keith M. Rockwell	Washington-based correspondent	Journal of Commerce	not available	not available	Europe

TRENDS Database Points of Contact

NAME	TITLE/POSITION	ORGANIZATION	ADDRESS	PHONE NUMBER	PUBLISHED WORK
Reginald Dale	Economic and Financial Editor	International Herald Tribune	not available	not available	Europe
DEMOGRAPHIC:					
Phillip Longman	Author of *Born to Pay: The New Politics of Aging in America*	not available	St. Petersburg, Florida	(813)894-6590	"The Challenge of an Aging Society." *The Futurist*
Ben J. Wattenberg	Senior Fellow	American Enterprise Institute	not available	not available	"The Case for More Immigrants." *U.S. News & World Report*
William J. Kahley	Economist in the Atlanta Federal Research Department	Federal Reserve Bank of Atlanta	104 Marietta Street Altanta, Georgia	(404)521-8500	"Interregional Migration: Boon or Bane for the South?" *Economic Review*
Peter Grier	Staff Writer	The Christian Science Monitor	not available	not available	"Complexities of Soldiering in Europe." *The Christian Science Monitor*
Maj. Henry C. Schrader	Administrative Officer	U.S. Army Physical Fitness School	Fort Benjamin Harrison, IN	not available	"Male & Female Soldiers: Physical Differences." *Army Trainer*
Paul Osterman	Associate Professor of Human Resources	Sloan School, MIT	Massachusetts Institute of Technology (M.I.T.) Cambridge, Massachusetts	not available	"Rethinking the American Training System," *Social Policy*
David Armor	Principal Deputy Asst Secretary of Defense (Force Management & Personnel)	not available	not available	not available	"DoD's Civilian Work Force," *Defense 88*

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Stanley W. Kandebo	Engineering Editor	Aviation Week & Space Technology	not available	not available	"U.S. Faces Potential Shortage of Engineers," *Aviation Week & Space Technology*
Rafael D. Pagan Jr.	Chairman and Chief Executive Officer	Pagan International	1025 Connecticut Ave. N.W., Suite 707 Washington DC 20036	not available	"A New Era of Activism," *The Fururist*
John E. Chubb	Senior Fellow	Brookings Institute Governememt Studies Prog.	1775 Massachusetts Ave., N.W. Washington, DC 20036	(202)797-6050	Brookings Review
Terry M. Moe	Professor of Political Science (former Brookings Senior Fellow)	Stanford University	not available	not available	Brookings Review
TECHNICAL:					
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Thomas R. Napier		USACERL Div/Off. - FSC	2902 Newmark Dr. Champaign, IL 61821-9005	(217)352-6511 ext 263	Technical Report
Cpt George F. Stone III	Instructor	Department of Systems Engr. U.S. Military Academy (USMA)	West Point, New York	not available	Military Review
George Taylor	Technical Writer	Army Tank-Automotive Command	not available	not available	Army Research, Development & Acquisition Bulletin
Maj. Ricky Lynch	Student	Command and General Staff College	not available	not available	Army Research, Development & Acquisition Bulletin
Gerald R. Lane	Acting Chief of the Robotics Division	U.S. Army Research Office	not available	not available	Army Research, Development & Acquisition Bulletin
Dr. Robert W. Shaw	Associate Director of the Chemical and Biological Sciences Division	U.S. Army Research Office	not available	not available	Army Research, Development & Acquisition Bulletin
Dr. Paul H. Dietz	Chief of the Vulnerability Methodology Branch, Vulnerability/Lethality Division	U.S. Army Ballistic Research Laboratory	not available	not available	Army Research, Development & Acquisition Bulletin

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Minard Hamilton	Director & Environmental Consultant	Radio Active Waste Campaign	New York, New York	not available	USA Today
Alice F. Laws	Associate Editor	Army Trainer	not available	not available	Army Trainer
Dan Grossman	Grad. Student of Science Policy and American Politics at MIT	Science for the People (Editorial Committee)	not available	not available	Science for the People
Seth Shulman	Coordinator and Freelance Writer	Science for the People (Editorial Committee)	not available	not available	Science for the People
Michael Herman	Environmental Studies Program	Dickinson College	Carlisle, PA	(717)245-1231 Admin.	APA Journal
Murray Weidenbaum	Dir. of Center for Study of American Business at Washington University	Malline Krodt Distinguished Univ. Prof.	not available	not available	Society

GLOSSARY

Army Long-Range Facility Plan (ALRFP) Translates the vision of the ALRPG into long-range plans to guide the provision of quality real property support to the Total Army. It establishes the foundation for MACOM and Army Component Command (ACC) installation and facilities plans. It addresses facilities needs for a 30-year period in consonance with the ALRPG. It establishes real property goals to be used by long-range planners and the engineer community to guide planning programming budgeting and execution activities

Army Long-Range Planning Guidance (ALRPG) The vision of the Army leadership which describes a framework for defining future requirements. The document analyzes national security objectives against a range of potential threats. It lays out planning assumptions and lists underlying conditions likely to hold true over the 30-year period. It examines political, military, economic, and technological events. The examination identifies trends and determines a range of possible results that bound the future operating environment. It then draws implications for future missions and achieving required capabilities. The ALRPG helps commands and agencies translate leader vision into long-range plans which guide preparation of the TAP.

Army Long-Range Planning System (ALRPS) This system establishes a broad but consistent view or Army long-range goals to be used by the mid- and near-range planners. It formulates staff long-range plans that describe how the Army is to be manned, equipped, employed and supported in the 10 to 20 year future.

The Army Plan (TAP) TAP documents Army leadership policy providing resource guidance and a definitive basis for program action. It is prepared by the ODCSOPS in coordination with the ARSTAF and major commands. It implements the decision by the Chief of Staff and Secretary of the Army as to the desired alternative for the objective force, discusses the threat and military strategy, and lays out what the Army wants to do in support of the mission and how it will build the objective force. It outlines national military strategy and security policy for the Army, states the Army's priorities within expected resource levels, and guides development of the total Army program and budget. It records the Army objective force and provides additional guidance for bridging the gap between the planning force and the programmed force.

Real Property Planning and Analysis System (RPLANS) An integrated automated master planning tool, incorporating many aspects of the Force Modernization Facilities Planning System (FPS), that provides planners and programmers with the capability to readily and efficiently calculate peacetime facility space allowances and compare them to available real property assets for a wide range of facility types. This multi-level system is to be a stand-alone user of IFS-M data. It is being fielded in the early 1990s at the installation level and, concurrently, as HQRPLANS at the MACOM and DA levels. The proponent for this system is the Installations Planning Division, Office of the Assistant Chief of Engineers, HQUSACE (DAEN-ZCI).

ABBREVIATIONS AND ACRONYMS

AEPI	Army Environmental Policy Institute
AHP	Analytical Hierarchy Process
ALRFP	Army Long-Range Facilities Plan
ALRPG	Army Long-Range Planning Guidance
ALRPS	Army Long-Range Planning System
ASIP	Army Stationing and Installation Plan
CIS	Capital Investment Strategy
DCSOPS	U.S. Army Office of the Deputy Chief of Staff for Operations and Plans
HQDA	Headquarters Department of the Army
MACOM	U.S. Army Major Command
MOA	Memorandum of Agreement
OACE	U.S. Army Office of the Assistant Chief of Engineers
PAX	Programming, Administration, and Execution (System)
RPLANS	Real Property Planning and Analysis System
SSI	U.S. Army War College Strategic Studies Institute
TAC	Technical Assistance Center
TAP	The Army Plan
TRENDS	Global Trends Analysis System
USACERL	U.S. Army Construction Engineering Research Laboratories
USAEHSC	U.S. Army Engineering and Housing Support Center

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